

**REMARKS**

Upon entry of this Amendment, claims 1-31 are all the claims pending in the application. Claims 25-31 have been added. Claims 1-3 and 8-24 have been withdrawn from consideration as being drawn to non-elected species. Claims 4-7 have been rejected under 35 U.S.C. §112, second paragraph, and/or 35 U.S.C. §103; Claims 5-7 have been objected to for an informality; and the specification has been objected to.

For the following reasons, Applicant respectfully traverses the rejections and objections and requests favorable disposition of the application.

***Objections to the Specification***

The title was objected to for not being clearly indicative of the invention to which the claims are directed. In response, Applicant has amended the title of the invention consistent with the Examiner's suggestion. Accordingly, withdrawal of the objection is requested.

The abstract of the invention was objected to for including the allegedly non-generic term "DF". In response, Applicant submits that the term "DF" is commonly known in the art as being representative of a "Dry-Film resist". In any event, Applicant has amended the abstract to substitute the phrase "Dry-Film resist" for "DF".

The body of the specification was objected for use of the term "DF3". Applicant has amended the specification consistent with the Examiner's suggestion, i.e., by replacing "DF3" with "DF 3". Accordingly, withdrawal of the objection is requested.

The body of the specification was objected to for use of the term "(S1)", etc. The Examiner requests that the term "(step S1)", etc., be substituted for "(S1)". In response, Applicant submits that there appears to be is no basis for requiring the proposed change.

Applicant further submits that the form “(S1)” is appropriately used throughout the specification as referring to the process shown in FIG. 3 corresponding to respective disclosure of the device shown elsewhere in the specification. Accordingly, withdrawal of the objection is requested. Alternatively, if the Examiner insists on the change, Applicant respectfully requests proper justification for requiring the change.

***Rejection of Claims 4-7 under §112, second paragraph***

Claims 4-7 have all been amended. Applicant submits that all claims satisfy each requirement of 35 U.S.C. §112.

In regard to the §112 rejection of claims 5 and 7 relative to paragraph number 10 on page 3 of the Office Action, Applicant submits that antecedent basis exists for the phrase “the mask pattern-eliminated electrode pattern.” In particular, this phrase refers to the electrode pattern subsequent to the masking and etching processes, which are clearly recited in independent claim 4, from which both claims 5 and 7 depend.

Accordingly, it is respectfully requested that the rejection under §112, second paragraph, be withdrawn.

***Rejection of Claims 4-7 under §103***

The present invention is directed to a projection electrode used, for example, on a wiring board. As disclosed and claimed, a projection electrode in accordance with the invention provides a higher degree of connection integrity between, for example, the wiring board and an electronic component. The connection integrity is improved by including a tapered bump etched directly on an electrode pattern of the wiring board. The tapered portion is constructed by

isotropically etching specific portions of the electrode pattern that are not masked by a dry-film resist photosensitive mask material.

In accordance with the method for forming the tapered portion of the electrode pattern disclosed in the present application, independent claim 4 recites, *inter alia*, wet etching the electrode pattern to form a tapered bump on portions of the electrode pattern not masked by the mask pattern.

As disclosed, for example, at page 11, lines 4-8, “under a wet etching process for example, overetching is effected beneath the DF 3 through the utilization of an isotropic corrosion action, [and] it is possible to provide projection electrodes 7 having a sharp-pointed bump end.”

Datta et al., on the other hand, discloses a completely different process for forming “conical projections”. Specifically, the process disclosed in Datta et al. is limited to an electrochemical machining (ECM) process. For example, as disclosed in the abstract, “[t]he conical projections are formed in metal by electrochemical machining in neutral salt solution, optionally in a continuous foil.” Datta et al. further discloses that;

Unlike connectors described in the art, the electrochemically machined (ECM) connector of the present invention is simply fabricated, reproducible, completely metallic, substantially smooth, of a single preselected height, non-brittle and applicable to interconnection of high density circuitry.  
(Col. 3, lines 16-21)

It is well known in the art that electrochemical machining (ECM), as disclosed in Datta et al., is entirely different than a wet etching process, as claimed in the present application. For at least this reason, Datta et al. does not disclose the subject matter of claim 4, either standing alone

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or in any reasonable combination with any other prior art of record. Accordingly, the rejection of claim 4, and all claims dependent therefrom, should be withdrawn.

***Patentability of New Claims***

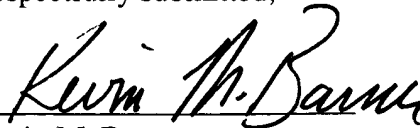
For additional claim coverage merited by the scope of the invention, Applicant has added new claims 29-31. Applicant submits that the prior art does not disclose, teach, or suggest the combination of features contained therein.

***Conclusion***

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

  
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